
Enhancing Patient Care Through Technology in Nursing Practice: Basis for Quality Policy Enhancement

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ABSTRACT

Integrating advanced healthcare technology into nursing practice is a critical driver of improved clinical outcomes and patient safety in modern healthcare. This study examined the integration of advanced healthcare technology into nursing practice as a basis for enhancing quality policy in a provincial hospital in Marinduque. Specifically, it assessed the demographic profile of staff nurses, their levels of competence in skills, knowledge, and values, the common challenges encountered when utilizing technological systems in patient care, and the significant relationship between competencies and challenges. Anchored on the Technology Acceptance Model (TAM) and the philosophy of pragmatism, the study employed a descriptive-correlational research design using a validated questionnaire to assess competencies and challenges. Findings revealed that staff nurses demonstrate a high level of competency, particularly in operating digital medical devices and understanding cybersecurity protocols, while exhibiting strong professional values toward patient safety. However, significant institutional challenges persist, notably frequent equipment downtime and training gaps involving limited hands-on simulation. Correlation analysis indicated that while individual skills and knowledge mitigate technical competency difficulties, they do not significantly influence system-driven issues like cybersecurity risks or equipment failures, which remain largely institutional. Consequently, a Quality Policy Enhancement Framework was developed, focusing on strengthening digital infrastructure, implementing simulation-based training and enhancing cybersecurity governance. The study concludes that while staff nurses are highly competent and positively inclined toward healthcare technology, effective integration requires stronger institutional support, resource allocation, and continuous professional development to fully optimize technology-enhanced nursing care.

Keywords: Nursing Practice, Healthcare Technology, Clinical Competency, Technology Acceptance Model, Quality Policy Enhancement

INTRODUCTION

Integrating advanced technology into nursing practice is fundamental for ensuring safe, efficient, and patient-centered care in the modern healthcare landscape. Digital tools like electronic health records and telehealth systems empower nurses to coordinate care effectively and reduce clinical errors through real-time data sharing (Garcia & Patel, 2021). However, the rapid pace of technological development often outpaces existing quality policies, creating regulatory gaps in areas such as data ownership and cybersecurity protocols (Lee et al., 2022). These challenges are particularly in provincial hospitals within the MIMAROPA region, where

nurses must navigate resource constraints, unstable internet connectivity, and fragmented training programs. This study seeks to address gaps by providing evidence-based insights to inform quality policy enhancements that are sensitive to the specific clinical workflows and institutional realities of provincial healthcare settings.

Statement of the Problem

This study sought to answer the following questions:

1. What is the demographic profile of the respondents in terms of age, sex, highest educational attainment, area of assignment, years of clinical experience, and current position?
2. What is the level of competency of the respondents on the current technological system in providing quality patient care in terms of skills, knowledge, and values?
3. What are the most common challenges of the respondents in utilizing the technological system in providing quality patient care in terms of cybersecurity risks, technical competency, equipment downtime, training, and education?
4. Is there a significant relationship between the level of competencies and common challenges in the utilization of technological systems in providing quality patient care when grouped according to profile?
5. Based on the findings, what policy enhancement can be proposed?

Scope and Delimitations

This study examined how technological applications in nursing practice, such as electronic health records and telehealth monitoring, can enhance patient care and inform quality policy improvements. The geographic and institutional scope is explicitly limited to one provincial hospital in Marinduque located within the MIMAROPA region. The research involved 50 staff nurses and their interventions using various digital tools over a one-month data collection period. Several limitations are acknowledged, including the rapid evolution of technology, which may render some assessed tools outdated, and time constraints that prevent the capture of long-term patient outcomes. Additionally, the study is subject to sampling and self-report biases as it relies on nurses' perceptions within a single, resource-constrained healthcare facility.

Review of Related Literature

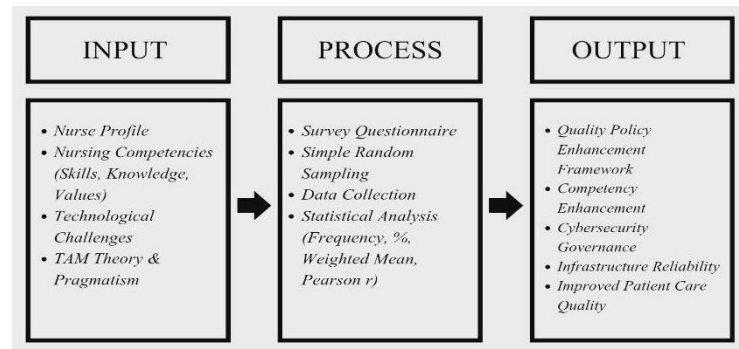
Integration of advanced digital tools, such as electronic health records and telehealth, is essential for providing safe, efficient, and patient-centered care in modern healthcare settings. Technologies such as wearable devices and artificial intelligence further enhance nursing practice by enabling continuous vital-sign monitoring and predictive analytics to improve diagnostic accuracy (Brown, 2021). Despite these benefits, significant challenges remain, including institutional cybersecurity vulnerabilities, frequent equipment downtime, and technical competency gaps among nursing staff (Lee et al, 2022)

Theoretical Framework

The study is grounded in the **Technology Acceptance Model (TAM)**, which proposes that Perceived Usefulness and Perceived Ease of Use are the main drivers of technology

adoption incorporates the philosophy of pragmatism, which focuses on actionable knowledge and practical outcomes to address real-world healthcare problems (Dewey, 1938).

Conceptual Framework



METHODOLOGY

This study used a descriptive-correlational quantitative research design to determine the relationship between nurses' competencies and technological challenges. It was conducted at a provincial hospital in Marinduque to provide a contextualized understanding of technology use in a resource-constrained environment.

Research Design

The descriptive-correlational research design was selected for its practical utility in examining the associations between variables, particularly nurses' competencies and systemic barriers, without manipulating them. This approach enabled the researcher to identify significant relationships between individual competencies and institutional challenges, providing an evidence-based foundation for developing a quality policy enhancement framework.

Research Steps

The research process began by securing ethical clearance from the Ethics Review Board and obtaining formal permission from the provincial hospital administration in Marinduque to conduct the study. Once institutional approvals were granted, the researcher conducted an orientation and explained the purpose of the study, the voluntary nature of participation, and strict confidentiality protocols. Each participant then signed an informed consent form before the researcher pretested the self-developed questionnaire to ensure the instrument's reliability and clarity. Following this validation, the structured questionnaires were administered to the 50 staff nurses, who were given ample time to provide their responses regarding technological competencies and security stored to undergo systematic analysis using both descriptive and inferential statistics.

Data Collection and Sample Collection

Data were collected using a self-made, expert-validated Likert-scale questionnaire that covered demographics, competencies, and challenges. The study used simple random sampling (lottery method) to select 50 staff nurses from a total population of 57 at the provincial hospital.

The completed surveys were collected, checked for completeness, and securely stored to undergo systematic analysis.

Data Analysis Methods

The data gathered were analyzed using descriptive statistics such as frequency counts, weighted means and standard deviations to summarize demographic profiles and competency levels, while ensuring reliability through Cronbach's alpha. Furthermore, inferential methods, including Pearson correlation and chi-square tests, are applied to examine relationships between variables, providing the evidence-based foundation for developing the proposed Quality Policy Enhancement Framework.

Study Limitation and Ethical Consideration

The study complied with the ethical standards by securing informed consent from all participants, ensuring voluntary participation, and allowing withdrawal at any time without penalty. Ethical standards were strictly upheld through formal clearance from the Ethics Review Board.

RESULTS AND DISCUSSION

The study reveals that staff nurses possess a high level of competency in using healthcare technology, particularly in operating digital medical devices, while maintaining professional values that prioritize patient safety and data confidentiality. Despite these strong individual capabilities, nurses frequently face institutional challenges such as equipment downtime and a lack of hands-on, simulation-based training.

CONCLUSIONS

The study concludes that while nurses at the provincial hospital demonstrate high levels of technological competency and positive professional values, successful integration of digital tools requires more effective institutional support and resource allocation. Findings reveal that nurses are particularly proficient in operating digital medical devices and maintaining cybersecurity awareness, although gaps remain in their ability to troubleshoot technical glitches independently. Despite these individual strengths, persistent institutional barriers, such as securing equipment downtime and addressing theoretical training gaps, significantly disrupt clinical workflows and increase nurse workloads.

RECOMMENDATIONS

Based on the findings and conclusions of the study, the following recommendations are suggested:

The hospital administration should prioritize enhancing digital health infrastructure and establishing a dedicated health information technology support unit to minimize equipment downtime and ensure immediate technical assistance. To address competency gaps, the nursing service office should implement a continuous digital training program that shifts from theoretical instruction to hands-on, simulation-based learning focused on electronic health records and device troubleshooting.

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AI DECLARATION STATEMENT

AI-supported tools helped with grammar and structure in creating this article. No AI tools were used to collect, analyze, or interpret data. All authors are credited for their academic contributions.

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